[Review]

Derivational Linearization at the Syntax-Prosody Interface


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1. Introduction

The monograph under review proposes that Heavy NP Shift (HNPS) in English and local scrambling (LS) in Japanese are interface phenomena governed by correspondence conditions on syntax-prosody mapping. The central idea of the book is that a syntactic object is mapped to a certain type of prosodic object and then spelled-out in the phonological component. This idea is formalized in (1) as the Prosodic Phase Hypothesis (PPH):

(1) The Prosodic Phase Hypothesis
   A syntactic object (SO) is spelled out as a prosodic object (PO).

The monograph consists of five chapters. Chapter 1 provides an overview of the PPH, background theoretical assumptions about the syntax-prosody interface, and major findings of the research reported in this monograph. Chapter 2 provides a detailed exposition of the PPH, and outlines major claims embodied by the PPH. Chapters 3 and 4 demonstrate how prosodic properties of HNPS and LS are explained in terms of the PPH by two conditions: the Prosodic Weight Condition and the Prosodic Economy Condition. Chapter 5 discusses further ramifications of the PPH.

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2. The Prosodic Phase Hypothesis

Shiobara proposes that the computational component of human language involves parallel derivation of SOs and POs from left to right in the top-down incremental structure-building model of Phillips (1996, 2003). These SOs and POs are subsequently linked to one another by the PPH. She proposes that this system is a production-based model grounded in Phillips’ Parser Is Grammar view of the language faculty. To illustrate how Shiobara’s system works, consider the well-known case of non-isomorphism between syntactic and prosodic structures shown in (2).

(2) a. [CP1 This is [DP1 the cat [CP2 that caught [DP2 the rat [CP3 that stole [DP3 the cheese …

b. [IntP1 This is the cat] [IntP2 that caught the rat] [IntP3 that stole the cheese] … (p. 37)

Within Shiobara’s system, both syntactic and prosodic constituencies are read off at different points of the top-down derivation. For instance, at the point when the noun cat is merged as in (3a), the constituent marked by α corresponds to a CP as well as an Intonational Phrase (IntP). However, this constituency is later destroyed when the noun rat is merged as in (3b), where the constituent marked by β corresponds to a DP and the constituent marked by γ corresponds to another CP/IntP.

(3) a. α (= CP1, IntP1) b. (CP1)

Shiobara defines spell-out as targeting an SO-PO pair which is identifiable as the domain of a certain pitch contour. She proposes that the maximal PO relevant to the PPH is IntP in English and Major Phrase (MaP) in Japanese. The PPH takes the form of the edge-alignment constraints in (4):

(4) α( = CP1, IntP1) b.a. (CP1)

this this is DP1 ⇒ is β (= DP1)
the cat the cat that
caught the rat…
(4) SO-PO Mapping for Maximal Prosodic Objects

a. English: Align (CP, R; IntP, R)

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(4a)

SO:  [CP the cat saw the rat]

PO:  [IntP the cat saw the rat]
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b. Japanese: Align (XP, L; MaP, L)

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(4b)

SO:  [CP [NP neko-ga] [VP [NP nezumi o] mita]]

PO:  [MaP neko-ga] [MaP nezumi-o mita]

  cat-Nom    rat-Acc saw

‘The cat saw the rat.’
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(6) A: Nani-ga nezumi-o tabeta no?  
what-Nom rat-Acc ate Q  
‘What ate the rat?’

B1: [MaP NEKO-ga nezumi-o tabeta rasii yo].  
cat-Nom rat-Acc ate they.say yo  
‘They say that a cat ate the rat.’

B2: #[MaP NEKO-ga] [MaP nezumi-o tabeta rasii yo]  
cat-Nom rat-Acc ate they.say yo (p. 62)

Shiobara thus revises the alignment constraints in (4a, b) to the ones in (7a, b), and formulates an additional condition in (8).

(7) SO-PO Mapping for Maximal Prosodic Objects with [Focus]
   a. English: Align (SO, R; IntP, R), where SO is with [Focus]SO (optional)

   e.g. SO: [IP [DP[F]so the cat] [ate the rat]]
   SO-PO mapping
   PO: [IntP the-CAT[F]PO ] [IntP ate the-rat]

   b. Japanese: Align (SO, L; MaP, L), where SO is with [Focus]SO

   e.g. SO: [CP [NP[F]so neko ga] [nezumi o tabeta]]
   SO-PO mapping
   PO: [MaP NEKO[F]PO-ga nezumi-o tabeta]  
cat-Nom rat-Acc ate  
‘The cat ate the rat.’

(8) The Prosodic Condition on Japanese [Focus]PO
   In Japanese, [Focus]PO must be in the PO that is spelled out fi-
   nally (= POₙ). (p. 63)

   (7a) requires that the right edge of an SO with focus be aligned with the 
   right edge of an IntP. As this constraint is optional, both (5B1) and (5B2) 
   are acceptable in English. (7b) states that the left edge of an SO with 
   focus must be aligned with the left edge of a MaP. This constraint is 
   satisfied both in (6B1) and in (6B2). However, (8) requires that material 
   following the focused item undergo obligatory reduction so that the item is 
   contained in the final MaP, as in (6B1) vs. (6B2).
3. Heavy NP Shift in English and the Prosodic Weight Condition

Chapter 3 investigates the prosodic properties of the HNPS alternation in English. Shiobara proposes that the HNPS is formalized within her top-down incremental structure-building model as the product of rightward movement. Under this view, when the PP is directly merged with V, the V’s selectional properties are satisfied on-line by the trace of the DP, and the whole CP is spelled out as a PO. The shifted DP is subsequently merged and spelled out as another independent PO. The central observation in this chapter is that the dislocated DP must form its own IntP, either by containing a large number of prosodic words or by carrying extra prosodic prominence, in order for the marked V-PP-DP order to be possible. This observation is formalized as the Prosodic Weight Condition (PWC) in (9), and is supported by the data in (10)–(12).

(9) The Prosodic Weight Condition (PWC)

\[ \text{PO}_n (= \text{the PO that is spelled out finally}) \text{ must be prosodically heavy by containing} \]
\[ \text{a. a larger number of prosodic words than } \text{PO}_{n-1} (= \text{the second final PO}), \text{ or} \]
\[ \text{b. a prosodic word with extra prosodic prominence.} \quad (p. 91) \]

(10A) A: What happened yesterday?
B: #\[\text{IntP Kay donated to the library}] \[\text{IntP her collection of novels by Mishima}]. \quad (p. 87)

(11A) A: What happened yesterday?
B: \[\text{IntP Kay donated to the library}] \[\text{IntP five hundred Canadian dollars and her collection of novels by Mishima}]. \quad (p. 89)

(12A) A: What happened yesterday?
B: \[\text{IntP Kay donated to the library}] \[\text{IntP the novels by Mishima}]. \quad (p. 90)

(10B) is ruled out because \text{PO}_n contains the same number of prosodic words as \text{PO}_{n-1}; both POs contain three prosodic words (i.e. Kay, donated and to-the-library vs. her-collection, of-novels and by-Mishima). (11B) is grammatical because the number of prosodic words in \text{PO}_n is greater than the number of prosodic words in \text{PO}_{n-1}. Similarly, (12B) is grammatical because \text{PO}_n contains the prosodic word MISHIMA, which is endowed with extra prosodic prominence. Note that the PWC predicts that the marked order should be available whenever the DP within the rightmost PO receives narrow-focus, because such focus is necessarily realized by extra prosodic prominence. This prediction is verified by the results of the acceptability
judgments in (13). The sample sentences used for this purpose are given in (14)–(18).

(13) Summary of Acceptability

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Broad</td>
<td>(14)</td>
<td>CP √</td>
<td># [IntP... V-PP] [DP[F]]</td>
</tr>
<tr>
<td>Single-narrow</td>
<td>(15)</td>
<td>DP √#</td>
<td>√ # [IntP... V-PP] [DP[F]]</td>
</tr>
<tr>
<td>Double-narrow</td>
<td>(16)</td>
<td>PP √</td>
<td>√ # [IntP... V-PP] [PP] [DP]</td>
</tr>
<tr>
<td>Double-narrow</td>
<td>(17)</td>
<td>V+ DP √#</td>
<td>√ # [IntP... V-PP] [PP] [DP]</td>
</tr>
<tr>
<td>Double-narrow</td>
<td>(18)</td>
<td>V+ PP √</td>
<td>√ # [IntP... V-PP] [PP] [DP]</td>
</tr>
</tbody>
</table>

(Reproduced from p. 95)

(14) Broad-focus (CP-focus) [What happened yesterday?]
   a. [IntP Kay donated her collection of novels by Mishima to the library].
   b. #[IntP Kay donated to the library] [IntP her collection of novels by Mishima]. (= (10B)) (p. 87)

(15) Single-narrow focus (DP-focus) [What did Kay donate to the Asian library?]
   a. √ # [IntP She donated her collection of novels by MISHIMA] [IntP to the library].
   b. [IntP She donated to the library] [IntP her collection of novels by MISHIMA]. (pp. 97–98)

(16) Single-narrow focus (PP-focus) [Where did Kay donate her collection of novels by Mishima?]
   a. [IntP She donated them to the Asian LIBRARY].
   b. * [IntP She donated to the Asian LIBRARY] [IntP them]. (pp. 99–100)

(17) Double-narrow focus (V+DP-focus)
[UBC Asian library is facing a serious financial problem. What did Kay do to save the library?]
   a. √ # [IntP She DONATED] [IntP her collection of novels by MISHIMA] [IntP to the library].
   b. √ # [IntP She DONATED] [IntP to the library] [IntP her collection of novels by MISHIMA]. (p. 101)

(18) Double-narrow focus (V+PP-focus)
[Kay will go back to Japan soon, but she had too many books to ship to Japan. Do you know what she did with her collection of novels by Mishima?]
The findings reported in (13) are accounted for as follows. The unacceptability of (14b) was already explained above as a violation of the PWC. This constraint is also violated in (15a) because $PO_n$ contains fewer prosodic words than $PO_{n-1}$. Shiobara argues that the variable acceptability of (15a) is due to this violation. On the other hand, the PWC is satisfied in (15b), where $PO_n$ not only contains more prosodic words than $PO_{n-1}$, but also carries extra prosodic prominence. In (16a), the sentence consists of a single IntP which contains the word with extra prosodic prominence and vacuously satisfies the PWC. However, the condition is violated in (16b); its severe ill-formedness is attributed to the extreme lightness of the stressless pronoun (i.e. *them*). (17a) consists of three IntPs if the alignment rule in (7a) applies. In that case, (17a) violates the PWC because $PO_n$ contains fewer prosodic words than $PO_{n-1}$. If (7a) does not apply, the sentence contains only one IntP, in which case the PWC becomes irrelevant. This explains the variable acceptability of (17a). (17b) is grammatical because it satisfies the PWC. A similar analysis applies to (18a, b).\(^2\)

In the remainder of the chapter, Shiobara addresses the question of why the PWC licenses the marked order and speculates that the constraint reflects the Phonetic Form (PF) requirement that VP dependents appear in order of increasing weight for processing.

### 4. Local Scrambling in Japanese and the Prosodic Economy Condition

Chapter 4 examines LS in Japanese in terms of the PPH. Shiobara observes that in broad-focus contexts, both PP+DP and DP+PP orders are felicitous; they exhibit the same prosodic pattern, namely that the left edge of a syntactic phrase is marked with a low tone and aligned with the left edge

\(^2\) A short note is in order about the variable judgments reported by Shiobara on the examples in (15) and (17). Shiobara observes that when the DP is (part of) narrow focus, the word order preference varies considerably between speakers. Thus, Shiobara mentions that four out of her five consultants found (15a) to be more acceptable than (15b), but one subject had the opposite judgment (p. 108). However, as far as I can tell from reading this monograph, she does not go into as much detail concerning the variable judgments of the sentences in (17a, b).
of the MaP, the domain of downstep. This point is illustrated in (19B, C)

(19)  A: Kinou nani-ga atta no?
yesterday what-Nom happened Q
‘What happened yesterday?’

B: Mayumi-ga [pp Mamoru-ni] [np nuigurumi-o] moratta yo.
Mayumi-Nom Mamoru-from doll-Acc received yo
‘Mayumi received a doll from Mamoru.’

C: Mayumi-ga [np nuigurumi-o] [pp Mamoru-ni] moratta yo.
Mayumi-Nom doll-Acc Mamoru-from received yo
‘Mayumi received a doll from Mamoru.’

Furthermore, the prosodic heavy effect observed in English HNPS sentences is totally absent in Japanese. This point is shown in (20B, C).

(20)  A: Kinou nani-ga atta no?
yesterday what-Nom happened Q
‘What happened yesterday?’

B: Megu-ga [np go-hyaku gojuu kanada-doru ijou
Megu-Nom five-hundred fifty Canadian-dollar more-than
mo-no taikin-o] Linguistlist-ni kifusita rasii yo.
even-of big.money-Acc Linguistlist-to donated they.say yo
‘They say that Meg donated such big money as more than five hundred and fifty Canadian dollars to Linguistlist.’

C: Megu-ga [np gojuu-doru-o] Linguistlist-ni kifusita
Megu-Nom fifty-dollar-Acc Linguistlist-to donated
rasii yo.
they.say yo
‘They say that Megu donated fifty dollars to Linguistlist.’

The LS alternation is also not associated with prosodic markedness in narrow-focus contexts. This is shown by the observation that the scrambled sentences in (21) and (22) exhibit the same prosodic patterns as the non-scrambled sentences in (23) and (24).
(21) NP-focus
A: ‘What did Mayumi receive from Mamoru?’

B: \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{NUIGURUMI-o}} \quad \text{[MaP \text{kare-ni}} \quad \text{[MaP \text{moratta} \quad \text{yo}]}.\]

‘She received a doll from him.’

(22) PP-focus
A: ‘From whom did Mayumi receive a doll?’

B1: \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{sore-o}]} \quad \text{[MaP \text{Mamoru-ni}} \quad \text{[MaP \text{moratta} \quad \text{yo}].}\]

‘She received it from Mamoru.’

> \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{sore-o}]} \quad \text{[MaP \text{MAMORU-ni}} \quad \text{[MaP \text{moratta} \quad \text{yo}].}\]

(23) NP-focus
A: ‘What did Mayumi receive from Mamoru?’

B1: \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{kare-ni}]} \quad \text{[MaP \text{nuigurumi-o}} \quad \text{[MaP \text{moratta} \quad \text{yo}].}\]

‘She received a doll from him.’

> \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{kare-ni}]} \quad \text{[MaP \text{NUIGURUMI-o}} \quad \text{[MaP \text{moratta} \quad \text{yo}].}\]

(24) PP-focus
A: ‘From whom did Mayumi receive a doll?’

B1: \[\text{[MaP kanojo-wa]} \quad \text{[MaP \text{MAMORU-ni}} \quad \text{[MaP \text{sore-o}]} \quad \text{[MaP \text{moratta} \quad \text{yo}].}\]

‘She received it from Mamoru.’
Shiobara proposes that Japanese LS has a different syntactic derivation from English HNPS. In the former, both the DP-PP order and the PP-DP order are base-generated, whereas in the latter, syntactic rightward movement is involved to yield the shifted order from the canonical non-shifted order. Shiobara demonstrates that the particular prosodic pattern observed in (21)–(24) is derived under this base-generation approach to Japanese LS from the interaction of the SO-PO mapping principle in (7b) and the prosodic condition in (8). To take (21), for example, the NP *NUIGURUMI-o ‘doll-Acc’ is marked with [Focus]SO. Accordingly, the left edge of this NP starts a new MaP in conformity with the principle in (7b). The condition in (8), in turn, requires that this MaP be POns, thereby yielding the dephrasing effect where all the elements following the focused NP are reduced, as schematically illustrated in (21B).

Interestingly, the examples in (22) and (23) illustrate another significant observation: namely, that when a narrow-focused element occupies the default sentence stress position (which is assumed to be the leftmost prosodic word in POns, and hence the element left-adjacent to the verb in Japanese), the pattern where the element carries default sentence stress is preferred over the pattern where the same element receives focal stress. Shiobara proposes that this preference is due to the condition in (25).

(25) The Prosodic Economy Condition (PEC) for Japanese

Japanese employs default sentence stress rather than focal stress whenever possible, in order to prosodically encode (dis)anaphoricity.

(p. 177)

Shiobara claims that default sentence stress in Japanese is prosodically distinct in that its pitch peak is higher than that of normal lexical stress. Consequently, adding extra prosodic prominence to the default sentence stress violates the production-based economy constraint.

Chapter 5 argues that various prosodic differences between English and Japanese are ultimately traced to the Lexical Accent Parameter (Pierrehumbert and Beckman (1988); see also Ladd (1996)), which characterizes languages depending on whether or not their pitch accents are distinctive. Japanese is a pitch-accent language, so its lexically determined pitch features make the range of intonational variation considerably smaller compared to that in English, whose prosodic prominence is more versatile and mobile. This difference manifests itself in the prosodic sensitivity of the HNPS order in English, and the lack thereof in Japanese for LS. Given that German and Dutch belong to English-type languages, in that their lexical pitch accents are non-distinctive, this parameter predicts that these
languages should also exhibit prosodic markedness in cases of VP-internal word order alternation. Shiobara shows that this prediction is indeed borne out by two observations in these languages: a) rightward-movement in the post-verbal domain exhibits prosodic markedness; and b) mobile prosodic prominence is possible in the pre-verbal domain.

5. Critical Evaluation and Concluding Remarks

What is ingenious about Shiobara’s proposal is her effective integration of the minimalist-style derivational mapping of SO-PO pairs with the production-based top-down incremental model. This proposal is in turn supported by her clear demonstration of the prosodic-sensitivity of English HNPS and Japanese LS with regard to the PWC/PEC, backed up by her careful elicitation of the acceptability judgments (see Appendices in Chapters 3 and 4 for details on her methodology). This is significant for the following reason: although a derivational approach to the syntax-prosody mapping has been argued for in recent minimalist-oriented works (see Dobashi (2003), Ishihara (2003) and Kahnemuyipour (2009), to mention a few), no previous work has investigated this mapping using the top-down structure-building model. Furthermore, the attempt to derive various differences between English and Japanese with regard to prosodic prominence from the Lexical Accent Parameter is worthy of further investigation; it suggests a new PF-parametric explanation for many other instances of VP-internal alternation across languages (some discussed in Chapter 5), which have long been regarded by many within the generative framework as being in the exclusive domain of syntactic approaches.

Several questions arise with the proposed analysis of HNPS and LS as well as the production-based top-down derivational model. First, there remains the question of whether LS alternation in Japanese is really optional in broad-focus contexts. Matsuoka (2003) uses weak crossover and quantifier scope tests to argue for two distinctive ditransitive verb types in Japanese which select different underlying word orders: pass-type verbs select the DP-PP order whereas show-type verbs select the PP-DP order. Matsuoka’s argument thus suggests that LS alternation in broad-focus contexts might not be optional; rather, it might be a result of selectional constraints on syntactic derivations imposed by the verb types. Successfully reconciling the results from the prosody-oriented study on LS with those from purely theoretical research would further bolster Shiobara’s hypothesis that VP-internal word alternation is prosodically conditioned.
ond, it is suggested that the PWC reflects performance-driven efficiency of on-line sentence processing; if a DP is heavy enough and remains in the canonical object position, the processor will need to look back at all the prosodic words within the DP to associate the sentence-final PP with the verb, an effort saved by HNPS. However, this explanation is partial at best; it does seem to cover the first half of the PWC in (9a), but it remains unclear how this covers (9b), i.e., the relevance of extra prosodic prominence to the shifted order. It is possible that the PWC has its roots in another functional motivation—the length of a syntactic phrase is proportional to the time required for its construction. The shifted order requires more time to prepare for production, and it is this extra planning time that may well be reflected by the marked prosody of the HNPS, where the dislocated DP is associated with extra prosodic prominence while the non-shifted DP is not. Third, there are some apparent problems with Shiobara’s syntactic arguments for the top-down structure-building approach to Japanese. For instance, Shiobara points out that the NP-Adv string cannot be the target of ellipsis, as shown in (26), and argues that this is because the relevant string does not form a constituent at the point of the derivation when the conjunction marker -te ‘and’ is merged because of the intervening verb happyosi ‘to present.’

(26) \([_a_1 \text{NP-AdvP}]-V \text{‘and’} [_a_2 \phi]-V\)

\(\text{Ken-wa} \quad [a_1 [\text{NP} \text{kisei-kuusyo-nituite-no} \text{ronbun-o}] \text{parasitic-gap-about-of paper-Acc} [\text{AdvP} \text{gengo-gakkai-de}] [\text{V happyosi-te,} \ [a_2 \phi] [\text{V tekkaisi}-\text{ta}] \text{language-conference-at present-and withdraw-Past} \text{‘Ken presented a paper about parasitic gaps at the linguistics conference, and withdrew it at the same conference.’}

(p. 211, with the original judgment reported by Shiobara)

However, I do not find this example necessarily unacceptable, contrary to Shiobara’s reported judgment. Indeed, as an anonymous reviewer of this review points out, the following example, which includes the ellipsis of a similar type of string (i.e. PP-Adv string), sounds perfectly natural.

(27) \([_a_1 \text{PP-AdvP}]-V \text{‘and’} [_a_2 \phi]-V\)

\(\text{Ken-wa} \quad [a_1 [\text{PP tomodati-to} [\text{AdvP gakkoo-de}]] [\text{V kenkasi-te,} \ [a_2 \phi] \text{Ken-Top friend-with school-at have a fight-and} [\text{V nakanaorisi}-\text{ta}] \text{make peace-Past} \text{‘Ken had a fight with his friends at school, and made peace with them there.’} \)
This example thus poses a potential problem for Shiobara’s account. It remains an important empirical challenge then to show whether the top-down incremental model is independently motivated by syntactic phenomena such as ellipsis in the first place, which is argued for by Shiobara.

As far as I can see, however, the most important issue which is not addressed in the monograph is how the new model adopted here—which integrates insights from minimalist and parsing-oriented models—distinguishes between competence and performance (Chomsky (1965)). For example, are HNPS sentences which violate the PWC ungrammatical at the syntax-prosody interface or simply performance errors beyond the syntax-prosody interface? Similarly, is the variable preference encoded by the PWC for Japanese LS due to some independent grammar-internal constraint or something else related to the articulatory-perceptual system? At any rate, there is no doubt that the new model allows us to ask significant architectural questions like these, which neither purely syntactic nor purely prosodic analyses would be able to address.

All in all, the monograph makes an important contribution to the newly emerging area of study of the syntax-prosody interface from the perspective of linearization. Various intricate observations about HNPS and LS are all used to motivate well-defined prosodic conditions couched within the compelling vision of syntax-prosody mapping. The overall theoretical stance embodied by the PPH defines a new avenue of research for further explorations of the interface which is in compliance with the recent Minimalist Program (Chomsky (1995)), whose desideratum is to yield deep understandings of linguistic phenomena from interface conditions imposed by the language-independent articulatory system. This book is therefore highly recommended for researchers interested in the syntax-prosody interface and new possibilities for interface explorations.

3 Note that here I have indicated the grammaticality of the example in (27) only as a potential problem for Shiobara’s account. Since she does not discuss the precise mechanism of ellipsis within her top-down incremental structure-building model, it is difficult for me to see how her account could be modified to capture the ellipsis patterns observed in (26) and (27).
REFERENCES


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